UNITED STATES PATENT AND TRADEMARK OFFICE

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10/511,825	10/20/2004	Antti Pietilainen	59643.00507	8850

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SQUIRE, SANDERS & DEMPSEY L.L.P.
8000 TOWERS CRESCENT DRIVE
14TH FLOOR
VIENNA, VA 22182-6212

EXAMINER
SHIFERAW, ELENI A

ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on _20 October 2004_.
2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1-12_ is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) _1-12_ is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☒ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on _10/20/2004_ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a) ☐ All   b) ☐ Some * c) ☐ None of:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____.
      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)
1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _10/13/2006 and 10/20/2004_.
4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1.   Claims 1-12 are pending claims 13 and 14 are cancelled without prejudice on the preliminary amendment submitted on 10/20/2004.

2.   The preliminary amendment, submitted on 05/04/2005, to the title is accepted.

3.   Claim 1 has been fully considered for statutory reason and has been interpreted as statutory in light of applicant's disclosure page 4 lines 9-12. The nodes in light of the disclosure are personal computers or set-top-boxes. Therefore "a plurality of communication nodes" are interpreted as hardware.

Information Disclosure Statement

4.   The information disclosure statements (IDS) submitted on 10/20/2004 and 10/13/2006 have been considered. The submission is in compliance with the provisions of 37 CFR 1.97. Form PTO-1449 is signed and attached hereto.

Oath/Declaration

5.   The oath filed on 09/08/2006 complies with all the requirements set forth in MPEP 602 and therefore is accepted.

Drawings

6.   The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "2" and "1" have both been used to designate "hub" as disclosed in the disclosure page 4 line 25 and page 5 line 27, respectively. "Hub 1" on page 5 line 27 should be changed to "Hub 2".

Specification

7.   Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be on **a separate sheet** i.e. without a drawing/title or should not be a PCT

first page. Appropriate correction is required.

Claim Objections

8.   Claim 8 is objected to because: in lines 2-3 the claim recites "at at least some times when

it would otherwise not be transmitting data to the nodes." The claim repeats the word "at" and

also the claim could be interpreted as *at least some times it would otherwise be transmitting data*

to nodes when it is not transmitting. (I.e. there is a possibility for the word "at least sometimes"

to be interpreted as 'transmitting over the link ... at least sometimes when the system is

transmitting data to the nodes'). For examination purpose the claim is interpreted based on

applicant's disclosure page 7 par. 4 as "wherein the data distribution unit is arranged to transmit

over the link communications addressed to an address that is not allocated to any of the nodes

when the link would otherwise be idle." Appropriate correction is required.

9.   Claim 1 is objected to because in line 7 wherein said "addresses allocated" should be

changed to "link-level addresses allocated" for proper antecedent bases (to refer to the link-level

address in line 3). Claim 9 in line 2, and claim 12 line 6 have similar problems and are objected

based on the same reason. Appropriate correction is required.

Claim Rejections - 35 USC § 103

10.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

11.   **Claims 1-7, 9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over**

Elliott et al. USPN 5276813 in view of Lyle USPN 6886102 B1 and Nikander GB 2367986 A.

Regarding claim 1, Elliott et al. discloses a communication system (fig. 1) comprising:

a plurality of communication nodes (col. 4 lines 12-18 and fig. 1 elements "D"; *plurality*

of different I/O devices D) connected by a data link (col. 3 lines 65-col. 4 lines 7 and fig. 1

elements 12-18; *data links 12-18*); and

a communication controller (fig. 1 element 10; *dynamic switch*) for allocating link-level

addresses to the communication nodes whereby the nodes may be identified for communications

over the link (col. 9 lines 15-21 and fig. 9 elements 110, 112 and 115; *dynamic switch assigning*

link address to link-level facility).

Elliott et al. fails to disclose the communication controller being arranged to change from

time to time the addresses allocated to each communication node and transmit the newly

allocated address to the respective node.

However Lyle discloses changing a port IP address at prescribed random intervals (*from*

time to time) by pseudo random number generator and transmitting the new changed address to

receivers (see col. 30 lines 8-55 and fig. 19 element 1904) that reads on the communication

controller being arranged to change from time to time the addresses allocated to each

communication node and transmit the newly allocated address to the respective node.

Therefore it would have been obvious to one having ordinary skill in the art at the time of

the invention was made to modify the teachings of Lyle within the system of Elliott et al.

because they are analogous in a network switch/router (see fig. 1). One would have been

motivated to incorporate the teachings of Lyle to confuse attackers from knowing addresses of

others and preventing unauthorized access by randomly changing device addresses.

Elliott et al. attaches CRC on the packet when assigning and providing link address, as

shown in col. 6 lines 52-59, for error detection but Elliott et al. and Lyle fail to explicitly disclose

transmit the newly allocated address to the respective node in encrypted form.

However Nikander discloses encrypting/hashing one or more components/link layer

address of an IP address and transmitting hashed (see col. 6 lines 16-col. 7 lines 7 and col. 5 lines

24-29).

Therefore it would have been obvious to one having ordinary skill in the art at the time of

the invention was made to modify the teachings of Nikander within the combination system of

Elliott et al. and Lyle because they are analogous in generation of address to devices. One would

have been motivated to modify the teachings of Nikander to protect the address from intruders.

Regarding claim 12, Elliott et al. discloses a method for communicating data in a

communication system (fig. 1), the communication system comprising a plurality of

communication nodes (col. 4 lines 12-18 and fig. 1 elements "D"; *plurality of different I/O*

devices D) connected by a data link (col. 3 lines 65-col. 4 lines7 and fig. 1 elements 12-17; *data*

links 12-18) and a communication controller (fig. 1 element 10; *dynamic switch*); the method

comprising:

the communication controller allocating link-level addresses to the communication nodes

whereby the nodes may be identified for communications over the link (col. 9 lines 15-21 and

fig. 9 elements 110, 112 and 115; *dynamic switch assigning link address to link-level facility*).

Elliott et al. fails to disclose the communication controller changing from time to time the

addresses allocated to each communication node and transmit the newly allocated address to the

respective node.

However Lyle discloses changing a port IP address at prescribed random intervals (*from*

time to time) by pseudo random number generator and transmitting the new changed address to

receivers (see col. 30 lines 8-55 and fig. 19 element 1904) that reads on the communication

controller changing from time to time the addresses allocated to each communication node and

transmit the newly allocated address to the respective node.

Therefore it would have been obvious to one having ordinary skill in the art at the time of

the invention was made to modify the teachings of Lyle within the system of Elliott et al.

because they are analogous in a network switch/router (see fig. 1). One would have been

motivated to incorporate the teachings of Lyle to confuse attackers from knowing addresses of

others and preventing unauthorized access by randomly changing device addresses.

Elliott et al. attaches CRC on the packet when assigning and providing link address, as

shown in col. 6 lines 52-59, for error detection but Elliott et al. and Lyle fail to explicitly disclose

transmit the newly allocated address to the respective node in encrypted form.

However Nikander discloses encrypting/hashing one or more components/link layer address of an IP address and transmitting hashed (see col. 6 lines 16-col. 7 lines 7 and col. 5 lines 24-29).

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the teachings of Nikander within the combination system of Elliott et al. and Lyle because they are analogous in generation of address to devices. One would have been motivated to modify the teachings of Nikander to protect the address from intruders.

Regarding claim 2, Elliott et al. discloses a communication system, wherein communications over the link comprise an address part indicating the address of the one of the nodes to which the respective communication is directed and a payload part (see fig. 2-4; *a packet comprising link header field, information field, and link trailer and the link header comprising DEST ADDR, SOURCE ADDR*).

Regarding claim 3, Elliott et al. discloses a communication system, wherein the address part is not encrypted (fig. 3 elements 50 and 52; *DEST ADDR and SOURCE ADDR*).

Regarding claim 4, the combination of Elliot et al. and Lyle disclose including CRC portion see Elliott et al. fig. 4 on the message of fig. 2 but fail to explicitly disclose a communication system, wherein the payload part is encrypted. However Nikander teaches encrypting/hashing one or more components/link layer address of an IP address and transmitting the message (see col. 6 lines 16-col. 7 lines 7 and col. 5 lines 24-29). Therefore it would have been obvious to one

having ordinary skill in the art at the time of the invention was made to modify the teachings of

Nikander within the combination system of Elliott et al. and Lyle because they are analogous in

generation of address to devices. One would have been motivated to modify the teachings of

Nikander by encrypting the address and include the encrypted address as a payload on the data

packet to protect the address from unauthorized users.

Regarding claim 5, Elliott et al. discloses a communication system, wherein communications

over the link are in the form of data packets (see fig. 2-4 and fig. 9).

Regarding claim 6, Elliott et al. discloses a communication system, wherein the

communication system comprises a data distribution unit (col. 3 lines 20-33; *dynamic switch 10*)

connected between the data link (*links 12-18*) and at least one external data source (*main*

storage) for forwarding data from the data source to the nodes (*devices D*) via the data link (col.

4 lines 1-40).

Regarding claim 7, Lyle discloses a communication system, wherein the data distribution unit is

arranged to forward the data to the nodes in a random or pseudo-random order (see col. 30 lines

8-55 and fig. 19; *generating new port IP address randomly and transmitting to receivers*).

Therefore it would have been obvious to one having ordinary skill in the art at the time of

the invention was made to modify the teachings of Lyle within the combination system because

they are analogous in a data routing device. One would have been motivated to incorporate the

teachings of Lyle to confuse attackers from knowing addresses of others and preventing

unauthorized access by randomly changing device addresses.

Regarding claim 9, Elliott et al. discloses a communication system, wherein a node is arranged to

store the address allocated to it (col. 7 lines 63) and to ignore communications on the data

channel addressed to addresses other than that address (col. 2 lines 65-col. 3 lines 2).

12.   **Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Elliott et al.**

USPN 5276813 in view of Lyle USPN 6886102 B1 and Nikander GB 2367986 A and further

in view of Laxman et al. US PG Pubs 2003/0018804 A1.

Regarding claim 8, Lyle discloses a communication system, wherein the data distribution unit is

arranged to transmit over the link communications addressed to an address that is not allocated to

any of the nodes (Lyle see col. 30 lines 8-55 and fig. 19; *generating new unique port IP address*

randomly and transmitting to receivers). Therefore it would have been obvious to one having

ordinary skill in the art at the time of the invention was made to modify the teachings of Lyle

within the combination system because they are analogous in a routing switch. One would have

been motivated to incorporate the teachings of Lyle to confuse attackers from knowing addresses

of others and preventing unauthorized access by randomly changing device addresses and

enhance security.

However the combination fails to explicitly disclose at at least some times when it would otherwise not be transmitting data to the nodes as interpreted in the disclosure page 7 par. 4 transmitting "when the link would otherwise be idle."

Laxman et al. discloses changing source address with a MAC address prior to sending over a network (see par. 0015 lines 10-12) and monitoring the network until the network is idle and when the network is idle transmitting the new changed MAC address (see par. 0033 and fig. 4B).

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the teachings of Laxman et al. within the combination system because they are analogous in data transmission. One would have been motivated to incorporate the teachings to properly transmit the packet when the network is not busy.

13.   **Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elliott et al. USPN 5276813 in view of Lyle USPN 6886102 B1 and Nikander GB 2367986 A, and further in view of Woundy USPN 6009103.**

Regarding claim 10, one can understand that the links 12-18 of Elliott et al., IPv6 link of Nikander are Ethernet links but the combination of Elliott et al., Lyle and Nikander fail to explicitly disclose Ethernet link.

However the examiner combines Woundy that discloses a broadband cable data distribution system (fig. 1) comprising a DHCP sever (fig. 1 element 12) for allocating network Ethernet addresses (see col. 3 lines 28-38 and col. 5 lines 17-36) to plurality of user terminals

(fig. 1 element 14) connected to server via a cable modem and coaxial cable via an Ethernet type

connection/Ethernet link (see col. 2 lines 60-67).

Therefore it would have been obvious to one having ordinary skill in the art at the time of

the invention was made to modify the teaching of Woundy within the combination system

because they are analogous in address allocating. One would have been motivated to incorporate

the teachings to assign Ethernet address and enhance a security of in an Ethernet communication

nodes address allocation.

Regarding claim 11, the combination of Elliott et al., Lyle and Nikander disclose all the

subject matter as discloses above. One ordinary skill can understand that the addresses of the

Elliott et al. and Nikander are Ethernet physical addresses but the combination of Elliott et al.,

Lyle and Nikander fail to explicitly disclose wherein the link-level addresses are Ethernet PHY

ID addresses.

However the examiner combines Woundy that discloses a broadband cable data

distribution system (fig. 1) comprising a DHCP sever (fig. 1 element 12) for allocating network

Ethernet physical addresses (see col. 3 lines 28-38 and col. 5 lines 17-36) to plurality of user

terminals (fig. 1 element 14) connected to server via a cable modem and coaxial cable via an

Ethernet type connection/Ethernet link (see col. 2 lines 60-67).

Therefore it would have been obvious to one having ordinary skill in the art at the time of

the invention was made to modify the teaching of Woundy within the combination system

because they are analogous in address allocating. One would have been motivated to incorporate

the teachings to allocate and enhance a security of in an Ethernet communication nodes Ethernet

address allocation.

Conclusion

14.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure. See PTO Form 892.

15.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to ELENI A. SHIFERAW whose telephone number is (571)272-

3867. The examiner can normally be reached on Mon-Fri 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Nasser R. Moazzami can be reached on (571) 272-4195. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

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information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Eleni A Shiferaw/

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